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ABSTRACT

Recent development and implementation of cooperative education on the graduate level in the U.S. and Canada is examined in this study. Several questions are addressed: How and why did graduate cooperative education programs begin? How was the program received on campus? What are the major program characteristics? What problems or issues are encountered in graduate cooperative education that are not encountered in undergraduate cooperative education? What is the future outlook for cooperative education on the graduate level? From telephone interviews from respondents at 30 operational graduate co-op programs, data are presented on: objectives, personnel involved, funding, attitudes, student and employer recruitment, mandatory/optional programs, schedules, lines of reporting, time and number of placements, curricula, policies, academic credit, tuition, salary range of graduate co-op jobs, graduate placement, current issues, and future plans. It is concluded that graduate cooperative education occurs on a much smaller scale than initially anticipated, and that approximately half of the programs operate on an ad hoc basis, most operated by the same staff people responsible for the undergraduate program. Difficulties in finding appropriate cooperative jobs are noted. Recommendations for improvement are offered. (LBH)

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COOPERATIVE EDUCATION FOR GRADUATE STUDENTS

by

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We are especially appreciative of the thirty directors of graduate cooperative education programs who took time from their busy schedules to participate in this study. We sincerely hope the information contained in this report will be of value to them.

Northeastern University
Boston, Massachusetts
June 1977

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INTRODUCTION

Amidst the phenomenal growth of undergraduate programs of cooperative education, which has occurred in recent years, the smaller growth of graduate cooperative education has gone relatively unnoticed. In 1971 Borman reported that 20 institutions operated graduate cooperative education programs.[1] In the 1978 annual program census conducted by the Cooperative Education Research Center, 90 institutions reported plans to initiate one. The proportionate increase in the number of graduate programs compares favorably to that of undergraduate programs. Yet to date, there has not been a comprehensive study of this more recent development and implementation of cooperative education on the graduate level. It was the intention of this research to conduct such a study.

In examining the growth of graduate cooperative education, there were a number of questions that were of interest:

- -How and why did graduate cooperative education programs begin?
- -How was the program received on campus?
- -What are the major program characteristics? (i.e., schedule, credit procedures)
- -What problems or issues are encountered in graduate cooperative education that are not encountered in undergraduate cooperative education?
- -What is the future outlook for cooperative education on the graduate level?

The following report will address itself to these questions.

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[1] Alvah K. Borman, "Graduate Programs," in Handbook of Cooperative Education by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1971), p. 70.

CHAPTER I

RESEARCH DESIGN

Research Plan

The research plan was to conduct a descriptive survey of graduate cooperative education programs in the United States and Canada. The particular survey technique selected was the structured telephone interview. The reason for this choice was that telephone interviews are a relatively cost-efficient way to gain in-depth information from a sample of respondents. They provide opportunities for exploration of particular questions, which a mailed questionnaire does not, and are considerably less expensive than an on-site visit to each program. In addition, using telephone interviews assures a high rate of response from the members of the research sample.

Once the basic technique for obtaining data had been selected, the next stage of the research was the development of an interview guide. The purpose of the guide was two-fold: to assure that the research objectives were covered in each interview, and to standardize the various interviews as much as possible. The guide was developed from research objectives and included specific questions on the history, the current structure, and the future plans of the sample graduate co-op programs. A copy of the interview guide is attached as Appendix A.

Sampling Procedure

A sample of one-third, or 30 of the 90 operational graduate co-op programs which existed in 1976 when this study began, was randomly selected for participation in the study. The 90 programs were identified through examination of

responses to the Cooperative Education Research Center's annual survey questionnaire. Although other programs of graduate co-op may exist at institutions which were not included in the Research Center's 1976 computer file of 1030 co-op institutions, the probability of this occurring is deemed to be low. Thus, a population estimate of 90 programs and a sample of 30 programs was assumed to be reasonable.

Sample Representativeness

In order to determine whether the randomly chosen sample of graduate programs adequately represented the population from which it was drawn, comparisons were made of sample and population characteristics. In particular, data related to type of institutional control (public or private), numbers of graduate co-op students, and the extent of participation in various graduate co-op curricula were analyzed. The results of this analysis, which appear in Table 1, are discussed below.

The sample certainly represents the population well with regard to institutional control. The figures indicate, however, that the sample is not as clearly representative with respect to numbers of students in graduate co-op. This random sample has a somewhat greater proportion of programs with fewer than ten graduate students (77%) than the population (65%) and, concomitantly, a smaller proportion of programs with 11 to 24 students (9%) than the population (18%). There is no real difference in the proportion of programs with participation of 25 or more students.

The extent of student participation in various curricula was analyzed in two ways. First, the number of graduate co-op students in each curricula was tallied for both the sample and the population. This analysis revealed a number of disparities between the sample and the population from which it

TABLE 1
Sample Representativeness[2]

	Sample		Population	
Control				
Public	22	(73%)	67	(74%)
Private	8	(27)	23	(26)
Number of students in each program				
1 - 10	17	(77%)	39	(65%)
11 - 24	2	(9)	11	(18)
25 or more	3	(14)	10	(17)
Student participation in each curricula				
Agriculture	--	--	251	(12%)
Applied Arts and Crafts	--	--	9	(0)
Architecture	1	(0)	1	(0)
Business	247	(31)	446	(21)
Computer Science	5	(1)	10	(1)
Education	17	(2)	259	(12)
Engineering	76	(9)	148	(7)
Health Professions	--	--	6	(0)
Humanities and Fine Arts	3	(0)	253	(12)
Law	253	(31)	256	(12)
Physical Sciences and Mathematics	5	(1)	32	(2)
Social and Behavioral Sciences	39	(5)	261	(12)
Technologies	163	(20)	174	(8)
Number of programs in each curricula				
Agriculture	1	(2%)	3	(2%)
Applied Arts and Crafts	--	--	3	(2)
Architecture	1	(2)	1	(1)
Business	13	(28)	32	(25)
Computer Science	1	(2)	5	(4)
Education	3	(7)	11	(9)
Engineering	11	(24)	26	(21)
Health Professions	—	--	2	(2)
Humanities and Fine Arts	4	(9)	8	(6)
Law	2	(4)	3	(2)
Physical Sciences and Mathematics	4	(9)	14	(11)
Social and Behavioral Sciences	5	(11)	14	(11)
Technologies	1	(2)	4	(3)

[2]Based on incomplete data available in the Cooperative Education Research Center's 1976 computer file.

was drawn. It particular, there were proportionately fewer[3] agriculture, education, humanities and fine arts students in the sample than in the population, and proportionately more law and technology students. On the other hand, an analysis of the number of graduate co-op programs that exist in each curriculum area for both the sample and population revealed virtually no differences. Thus, the discrepancies occurred largely because some of the sizable programs in the sample had a high concentration of their students in only one or two majors. Subsequent data analysis will be reported with these facts of sample representativeness in mind.

Research Methodology

Each of the 30 program directors was contacted first by letter and then by telephone to ask for their participation in the study. (A copy of the letter is attached as Appendix B). Of the 30, three chose not to participate in the study because they felt they did not have a viable cooperative education program on the graduate level. Substitute institutions were randomly chosen from the 60 remaining colleges until three were found who agreed to participate.

Prior to conducting the 30 telephone interviews, the project staff carried out a number of pre-test interviews with graduate co-op programs which were not a part of the sample. The purpose of this activity was to test the interview guide for clarity and utility and to refine interview techniques. Project staff also role-played, alternately taking on the role of interviewer and interviewee, as another check on both the interview guide and interviewing skills.

Once the staff members were comfortable with the guide and the procedure for the telephone interview, the actual interviewing of the sample program

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[3]Denotes a difference of 20 or more percentage points between sample and population figures.

directors began. The usual approach was to call and set up a half hour block of time, at the interviewees' convenience, for the interview. In actuality, interviews ranged from about 10 minutes to 45 minutes in length, depending upon the scope of the program. The majority of the interviews took place in October and November of 1976.

In order to facilitate the recording of information during each interview, a list of possible answers to each question was compiled and placed in the appropriate section of the interview guide. Thus, the interviewer could simply circle the appropriate responses and take notes on any additional information that was provided. All interviewees were assured that their conversations would be confidential and that the participating institutions would not be identified in the final report.

CHAPTER 2

RESEARCH FINDINGS

After each interview was completed, a detailed record of the conversation was prepared. These became the data base for subsequent analyses. Due to the sample size, it is necessary to exercise particular caution in the analysis and interpretation of results. Presentation findings will, therefore, be organized as follows: Section I will include those results which are statistically reliable or most reasonably generalizeable; Section II will include a number of observations which, due to small size are not statistically reliable but which, nevertheless, are of interest and potential significance.

In both Sections I and II, tables will be included wherever appropriate. Tables will contain data obtained during the telephone interviews. If a particular table has a total of fewer than 30 responses, it is either because the information was not available at the time of the interview or the question was not relevant to particular programs.

Section I - Generalizeable Findings

One of the first things that became apparent upon a review of the case studies was the finding that graduate co-op occurs on a much smaller scale than was originally anticipated. Although 90 program directors responded "yes" to the Cooperative Education Research Center's 1976 survey question "Does your institution offer cooperative work experience to graduate students?", this study revealed that fewer than 90 programs are actually in operation. For example, 35 of the 90 programs were contacted in order to obtain a research sample of 30 viable programs. More importantly, of these 30 programs, five place an average of fewer than one student a year, 21 place between one and ten students a year, and only four place 25 or more students a year. These placement figures are

lower than those indicated by the Cooperative Education Research Center's survey data discussed earlier. Generalizing from these results, graduate co-op is a much smaller programmatic effort than we initially expected.

Another pattern that was observed in the early stages of data analysis was that there are two types of graduate co-op programs in the sample: those that are structured and those that run on an ad hoc basis. The programs that we labelled as structured have a number of distinguishing characteristics. They were formally planned by either administrators, co-op educators, teaching faculty, or a college committee structure. Even though most of the structured programs have optional student participation, most make some efforts to recruit students to the program. Generally, their goal is to provide cooperative work experience in order to enhance personal and career development of graduate students. In addition, structured programs are likely to have proposed new plans regarding the future of their program.

A Fisher's Exact Test[4] was used to compare structured and ad hoc programs with respect to these characteristics. The test revealed that differences between the two program types were significant using the .05 level of significance. (See Table 2). For instance, programs that were labelled as ad hoc were invariably initiated by someone outside the college administrative structure: usually a student and, more rarely, an employer. In most of these programs, no active recruitment of students was reported. Instead, whenever an interested student approaches the co-op department, an attempt is made to find a placement for that particular student. Generally their goal is to serve the needs of individuals. These programs are generally quite flexible and usually have not planned to change their overall approach to graduate co-op in the future. None of the ad hoc programs have sizeable student

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[4]The Fisher's Exact Test is a nonparametric statistical technique that is useful in analyzing small samples when data fall into one or the other of two mutually exclusive classes.

TABLE 2
Comparison of Ad Hoc and Structured Programs
Using Fisher's Exact Test

	Ad Hoc		Structured	
Persons involved in planning graduate co-op				
Students in conjunction with others	8	(57%)	2	(13%)
College staff only	6	(43)	13	(87)
	p = .017			
Recruitment of graduate students				
Not recruited at all	11	(79%)	4	(29%)
Recruitment techniques used	3	(21)	10	(71)
	p = .011			
Program goals				
Serve needs of individuals	10	(48%)	1	(4%)
More generalized goals, i.e., provide work experience for personal and career development	11	(52)	25	(96)
	p = .000			
Future plans of program				
Continue as is	8	(57%)	2	(13%)
Alter or expand	6	(43)	13	(87)
	p = .017			

participation. In fact, the largest program in this grouping has fewer than ten students who participated during the most recent academic year. Although it is difficult to generalize with a sample of this size, it seems reasonable to conclude that these two types - structured and ad hoc - also occur within the rest of the population of graduate co-op programs and, in fact, represent two distinct approaches to placement of graduate students.

In addition to the findings regarding program size and structure, the study also revealed that almost all of the 30 graduate co-op programs are

administered by the same staff members who are responsible for undergraduate co-op. In only one of the large (more than 25 students) structured programs is an additional full-time staff member hired to work with graduate co-op. Such a staffing plan would be expected to occur in all ad hoc programs and in smaller structured programs.

Another common thread that was found among almost all of the sample institutions was the discovery that graduate co-op is considerably more individualized than co-op on the undergraduate level. A number of explanations were suggested for this difference. Some graduate students are married and, therefore, are not able or willing to relocate for a job. Other students enter the graduate co-op program with work experience and, therefore, examine the quality of the co-op job more carefully than an undergraduate student might. Some older graduate students do not want to extend the time needed to complete their graduate degree and, thus, want a schedule of co-op jobs that will allow them to graduate on time. As a result of these additional demands by graduate students, a co-op placement at the graduate level is more complex and individualized than is the average undergraduate placement.

In addition to these more general findings, a number of trends were found that, although not statistically reliable, are of interest and potential significance. These trends will be reported in Section II. Specifically, this section includes a description of the development and implementation of graduate co-op as well as problem areas and future plans of the 30 sample programs. Any findings that are potentially significant for all graduate co-op programs are noted in the discussion. In addition, the characteristics of the sample of graduate co-op programs are compared, where appropriate, to the known characteristics of undergraduate programs. This will be useful in judging how and why graduate co-op differs from undergraduate co-op.

Section II - Characteristics of Sample Programs

Development and Implementation

Growth of Graduate Co-op Programs

The data obtained from the sample when considered in conjunction with those presented in Alvah Borman's chapter in the Handbook of Cooperative Education show that graduate cooperative education is a relatively recent concept in graduate education.[5] Forty-six percent of the sample programs have been initiated since 1970 and all of the programs began after 1950. Although the number of undergraduate co-op programs has been much larger than that of graduate programs, the growth rates have not differed greatly. Comparisons of the data from both groups indicate that the number of graduate and undergraduate co-op programs has increased most dramatically since 1961.

TABLE 3
Date of Sample Program Implemenation

	Graduate Programs (Sample)		Undergraduate Programs (Population)	
1971 - present	13	(46%)	628	(66%)
1961 - 1970	11	(39)	247	(26)
1951 - 1960	4	(14)	41	(4)
1900 - 1950	--	--	43	(5)

How Programs Began

Program directors were asked to indicate the initiator of their graduate co-op program. Over one-third stated that their programs were started as a

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[5] Alvah K. Borman, "Graduate Programs," in Handbook of Cooperative Education by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1971), p. 71.

result of student request. The rest of the sample programs were initiated by employers, administrators, faculty or directors of co-op programs.

TABLE 4
How Sample Programs Began

Students	11	(37%)
Employers	4	(13)
Administration	4	(13)
Faculty	6	(20)
Director of Co-op	5	(17)

Program Objectives

Directors were asked to specify the initial objectives of their graduate co-op program. Interestingly, little shift was noted by program directors from their initial to current objectives. Providing work experience for graduate students was cited by 47 percent of the sample program directors as a primary objective of their co-op programs. In a number of programs, work experience was reported to be particularly important for students who are starting graduate work without direct experience in their field. Reasons given for the desirability of this work experience were (1) for the purpose of career development, i.e., to give the student the experience to verify and/or specify his interest in the field and (2) to provide the student with additional maturity. As discussed in Section I, providing work experience for students was given as an objective of structured programs more often than ad hoc programs.

The second most commonly stated objective was to serve the needs of particular students. One third of the program directors specified this as one of their objectives. Ad hoc programs were more likely to state this as an objective than structured programs. The Fisher's Exact Test, which appears in Section I of this chapter, showed this difference to be statistically

significant. Implicit in this objective, to serve the needs of particular students, is its congruency with the less structured nature of ad hoc programs. An objective which meets the needs of particular students will vary from student to student. A program employing this philosophy would be likely to be more flexible and less structured.

TABLE 5
Objectives of Sample Programs

	Percent of Program Directors Stating Objective[6]	
Provide work experience	14	(47%)
Serve needs of particular students	11	(37)
Satisfy needs of local employers	6	(20)
Enhance career development	3	(10)
Provide financial assistance	2	(7)
Attract students	5	(17)
Increase faculty involvement	1	(3)
Assist in postgraduate employment	1	(3)
Enhance classroom education	1	(3)

An interesting characteristic of ad hoc programs in this sample is the small number of different objectives voiced by the ad hoc program directors. In addition to serving the particular needs of students and work experience, the only other objectives specified were career development and serving the employer needs. On the other hand, a greater variety of objectives were expressed by directors of structured programs. These include enhancing the classroom education of students, increasing the number of graduate students, providing financial assistance to students, providing potential for postgraduate jobs for students, increasing faculty involvement, and meeting the needs of the college as well as providing work experience.

[6]Many program directors reported more than one program objective. Percentages are thus calculated on the basis of frequency of objective occurring in all 30 programs.

Persons Involved in Planning of Graduate Co-op

Information was obtained concerning the individuals involved in the planning of graduate co-op programs. The data presented in Table 6 is grouped into two categories: those programs involving students in the planning and those not involving students. Only 31 percent of all programs involved students in the planning of graduate co-op. As we discussed in Section I, student participation in graduate co-op planning is more likely to occur when the co-op program is run on an ad hoc basis. In contrast, planning of the structured programs generally involved faculty or faculty with co-op staff.

TABLE 6
Persons Involved in Planning of Sample Programs

Students with faculty and/or co-op	9	(31%)
Faculty, co-op, and/or administration	20	(69)

	Ad Hoc		Structured	
Students with faculty and/or co-op	8	(57%)	1	(6%)
Faculty, co-op, and/or administration	6	(43)	15	(94)

	No Formal Planning		Formal Planning	
Students with faculty and/or co-op	10	(67%)	0	(0%)
Faculty, co-op, and/or administration	5	(33)	15	(100)

When programs were divided into those which involved formal planning and those which were not formally planned, it became apparent that formally planned programs involved faculty, co-op staff, and/or administrators, but did not involve students. This finding is consistent with the above data on ad hoc programs: the generally informal ad hoc programs are the ones most likely to have students involved in planning.

Program Funding

Almost all of the sample co-op programs are supported either by the undergraduate co-op budget or the budget of the academic department in which they are operating, and have been since their inception. This would necessarily be true of all ad hoc programs and all structured programs with fewer than ten students in order to be cost effective. The few larger programs did require additional budgetary allocation in order to hire staff to develop and administer the program and for other related expenses. Five of the sample programs have received federal money, again in conjunction with their undergraduate co-op program, in order to begin their programs. Only one of these is totally dependent on federal money.

Attitudes Toward Graduate Co-op

Participants in this study were asked to rate the current attitudes of students, administrators, and faculty towards graduate co-op. Students who have participated in graduate co-op were reported as being supportive of the graduate co-op experience. This is not surprising, considering the highly individualized nature of many co-op programs. Students, in many cases, are active in setting up their co-op experience to satisfy their own specific needs. On the other hand, seven program directors indicated that students on their campus were not generally interested in graduate co-op and a number of other directors reported general disinterest except for the few active co-op participants. This indifference could be a result of small program size and limited resources in recruitment and public relations efforts. Competition from assistantships and fellowships as well as most students' desire to complete degree work as quickly as possible are other contributing factors.

Faculty and administrative support of co-op is also favorable, but less so than reported student support. Seventy-six percent of the program directors

viewed students as at least somewhat supportive compared to 60 percent of the administrators and 61 percent of faculty. Although the amounts of administrative support and faculty support are not statistically different from student support, the differences may indicate a greater support base from students than faculty or administrators in the institutions of this sample.

TABLE 7
Attitudes Toward Graduate Co-op

Student Support of Graduate Co-op		
Enthusiastic support	13	(43%)
Somewhat supportive	10	(33)
Indifferent	7	(23)
Administration Support of Graduate Co-op		
Enthusiastic support	13	(43%)
Somewhat supportive	5	(17)
Indifferent	9	(30)
Opposed	3	(10)
Faculty Support of Graduate Co-op		
Enthusiastic support	12	(43%)
Somewhat supportive	5	(18)
Indifferent	11	(39)

Student Recruitment

Interviewees were asked to specify the methods which they use to recruit students to their programs. In 50 percent of all sample programs, students are not recruited at all. The reason given for not recruiting is that the programs could not handle additional students. Those programs that do actively recruit students employ methods similar to those used by undergraduate co-op programs such as brochures, media advertising, faculty announcements, and word-of-mouth.

When methods of recruitment employed by ad hoc programs are compared to those used by structured programs, it becomes evident that the majority of programs which do not recruit students are ad hoc programs. Students in these

programs must individually request graduate co-op. Table 2 in Section I shows this statistically significant comparison of recruitment approaches for ad hoc and structured programs.

Employer Recruitment

Data presented in Section I reveals that the majority of graduate programs are administered through the undergraduate co-op department. Further evidence for viewing graduate co-op as an extension of the undergraduate co-op program may be found by examining methods of employer recruitment. For example, one-third of the programs in the sample reported that their undergraduate employers also serve as employers for graduate co-op students and no special recruitment is necessary. In those cases where employer recruitment is needed, most programs use job development techniques similar to those used in undergraduate co-op. In only a couple of programs did directors point out that employers are recruited differently than for undergraduates. In one graduate program, an employer is asked to participate in the co-op program in response to an individual student's request. In contrast, the undergraduate program at this institution recruited job slots which could then be filled by a variety of qualified individuals. Generally, however, graduate co-op employers are either the same as undergraduate employers or are recruited in a similar manner.

In five of the programs, employers were so interested in either a particular student or program that they approached the co-op director and asked to be a part of the program. In fact, three of these five co-op programs were initiated as a result of strong employer interest in graduate co-op.

In contrast to these programs, ten directors reported they had experienced difficulty in recruiting employers for their graduate students. Many of the problems, which are enumerated in Table 8, are peculiar to placement of graduate

co-op students: these issues do not arise in undergraduate placement. It is interesting to note that most of those programs not reporting difficulties in placement place ten or fewer students a year. This suggests that issues related to employer recruitment may not arise unless programs are larger.

TABLE 8
Problems Encountered in
Recruitment of Graduate Co-op Employers

None mentioned	20	(65%)
Limitations of employment possibilities in geographic area	3	(10)
Employer did not need people with graduate degrees	1	(3)
Employer did not want to pay higher salaries asked by graduate students	1	(3)
Students want relevant jobs but may not have related undergraduate experience	2	(6)
Employers prefer it when co-op slot is filled year round and this is harder to do with graduate co-op students	1	(3)
Employers prefer to keep their own employees who seek graduate training or have a graduate degree	1	(3)
Varies with economic conditions	2	(6)

Mandatory/Optional Programs

Twenty-seven of the 30 graduate co-op programs are optional. Only one of the sample programs is completely mandatory. Two of the programs have some curricula in which it is optional and some in which it is mandatory. Of these latter three programs which are not strictly optional, it is interesting to observe that all are structured, sizeable (at least 50 students) programs.

Program Schedule

There are a variety of program schedules being followed by graduate students in the research sample. As the data in Table 9 show, parallel schedules are used least often. Of the eight programs that use an alternating schedule, all are operated by a co-op department, not an academic department.

A comparison of undergraduate program schedules with the graduate program schedules reveals that a notably higher percentage of graduate programs offer a field schedule[7] as compared to undergraduate programs. Given the small graduate co-op sample size, this difference has no statistical significance. This finding, however, is consistent with the discovery that graduate co-op programs are less structured and considerably smaller than their undergraduate counterparts and, thus, would be more likely to implement the flexible field schedule.

TABLE 9
Program Schedule

	Undergraduate (Population)[8]		Graduate (Sample)	
Alternating	283	(31%)	8	(27%)
Field	45	(5)	9	(30)
Parallel	127	(14)	4	(13)
Varies/Other	450	(50)	9	(30)

Lines of Reporting

The majority of the 30 graduate co-op program directors report to an academic administrator, such as the Academic Dean or Provost. The rest report to a variety of other administrators, as illustrated in Table 10 below. In this regard, programs comprising the sample are like most undergraduate co-op programs, 87 percent of which report to an academic administrator.

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[7]The term field schedule is defined, for this study, as one in which participating students leave the campus for work assignments during a specified period of time, not more than once a year in a given academic year.

[8]Data on undergraduate programs is made available through the Cooperative Education Research Center's computer file.

TABLE 10
Lines of Reporting

	Undergraduate (Population)		Graduate (Sample)	
Academic Administrator	726	(82%)	19	(63%)
Dean/Vice President of Student Affairs	54	(6)	3	(10)
President	35	(4)	1	(3)
Dean/Vice President for Continuing Education	80	(8)	1	(3)
Dean/Vice President for Career Education			4	(13)
Executive Vice President			2	(7)
Other	--	--	--	--

Time and Number of Placements

For most (23) of the sample institutions, the time of the first graduate co-op placement is not fixed. Six of the programs report they usually place a student after one academic semester, but even this is not a strict rule and is subject to variation. The fact that the vast majority of respondents report such flexibility regarding time of first placement is indicative of the more general trend toward individually tailored programs for graduate co-op students.

Considerable variation also exists in the average number of co-op terms a graduate student is likely to have. About one third of the sample programs average one co-op term for each student. The remaining programs vary from two to three possible terms on co-op.

For just over half the sample institutions, participation in graduate co-op does extend the time required to complete their degree programs. In another seven institutions, it may or may not extend the time needed for a degree: this varies according to the number of placements a student has. Five other programs report that participation in co-op does not affect the length of time needed to complete the degree program. As an examination of Table 11 below shows, the amount of time that participation in graduate co-op prolongs the degree program varies.

TABLE 11
Additional Time Required to Complete A Co-op Degree Program

One semester more	5	(23%)
Two or three semesters more	7	(33)
Varies	9	(43)

Graduate Co-op Curricula

In the discussion in Chapter I on sample representativeness, data was presented on those curricula in the sample institutions which offer graduate co-op. The information presented in Table 12, which was collected during the telephone interviews, is consistent with that shown earlier in Table 1. Both indicate that business and engineering are the most frequently occurring graduate co-op curricula and that liberal arts is the next most common. It should be noted that those curricula, such as law, that occur least often as a graduate co-op curriculum, may still have high levels of student participation. (See Table 1).

TABLE 12
Co-op Curricula In Sample Programs

Agriculture	1	(2%)
Allied Health	3	(6)
Business	14	(28)
Education	2	(4)
Engineering	14	(28)
Law	2	(4)
Liberal Arts	9	(18)
Co-op available to all majors	5	(10)

Policies - Academic Credit for Graduate Co-op

Of the 30 sample programs, 14 do not award credit at all, 12 do award credit, and four have policies which vary from one student or major to another. This distribution is different from that found in the Cooperative Education Research Center's sample of undergraduate co-op programs. Undergraduate programs

have a much higher percentage of programs awarding non-additive credit (68%) than occurs in the sample of graduate programs (20%). Given the small sample size of 30 graduate co-op programs, this discrepancy between the proportion of undergraduate and graduate programs awarding credit may not be statistically reliable. It is large enough, however, to indicate a trend and should be re-examined in future studies.

TABLE 13
Academic Credit for Graduate Co-op

	Undergraduate (Population)			Graduate (Sample)		
None awarded	104	(11%)		14	(47%)	
Credit awarded						
Additive	94	(10)	(84%)	2	(7)	(40%)
Non-additive	627	(68)		6	(20)	
For independent study	52	(6)		4	(13)	
Varies	49	(5)		4	(13)	

In those instances where graduate degree credit is awarded, it is generally a member of the teaching faculty who is responsible for awarding the credit. In two institutions, the co-op coordinator awards the credit and in another program, the co-op coordinator and a member of the teaching faculty share responsibility for awarding credit.

TABLE 14
Responsibility for Awarding Credit

	Undergraduate (Population)		Graduate (Sample)	
Teaching faculty	228	(29%)	12	(80%)
Co-op with teaching faculty	165	(21)	1	(7)
Co-op coordinator and/or director	324	(40)	2	(13)
Other	75	(10)	--	--

A review of four year undergraduate co-op program practices shows that in 29 percent of the programs, responsibility for awarding credit lies in the academic department. In 21 percent of the undergraduate programs, credit

is awarded by the co-op department staff in conjunction with the teaching faculty, and in 40 percent of the programs, a co-op staff member awards the credit. Although the graduate co-op sample is small, it does appear that the above data on graduate and undergraduate practices in awarding credit show a trend toward a greater faculty role in crediting graduate co-op learning.

There is no single criterion that is used by the sample institutions in deciding whether to award academic credit for graduate co-op. In most cases, it varies from one academic department to another or according to the type of independent study project involved. The types of criteria that were reported, such as employer evaluation forms, learning contracts, or student report, are like ones used on the undergraduate level.

There is also considerable flexibility in the number of credits per term that a graduate co-op student may receive. Although this number ranges from one to sixteen, depending upon the particular program and student, the average range is between three and six credits per term. The number of credits that may then be applied towards the degree varies so greatly from one student to another, that program directors were unable to estimate a reliable average.

Tuition for Graduate Co-op

As the data in Table 15 show, the majority of undergraduate programs charge tuition for participation in co-op at the regular rate per credit hour. Graduate co-op programs in this sample, on the other hand, employ a variety of approaches.

TABLE 15
Tuition for Graduate Co-op

	Undergraduate (Population)		Graduate (Sample)	
Regular rate per credit hour	611	(77%)	8	(27%)
Different rate per credit hour	46	(6)	3	(10)
No tuition	74	(9)	8	(27)
No tuition/regular fee charged	58	(7)	11	(37)

Salary Range of Graduate Co-op Jobs

All program directors were asked to estimate the average salary received by their graduate co-op students. The salary levels range from 0 - $1200/month and the mean salary is $793/month or $9516/year.

Graduate Placement and Graduate Co-op

Program directors were asked to estimate the percent of their students who remained with their graduate co-op employer after receipt of their Master's degree. Almost half of the sample members could not give an estimate either because their program was so small that estimates would be unreliable or because records were not kept. Of the 17 programs that could give estimates, six said none of their students remained with the co-op employers, five said less than 25 percent remained with the employer, and six estimated as many as 40 percent or higher continued with their employers. Once again, the most striking observation one can make about the data is the wide range of responses to the question.

Current Issues and Future Plans

Current Issues

Participants in the graduate co-op study were asked to discuss any problems or issues they had encountered in implementing graduate level co-op that did not occur in their undergraduate co-op programs. All but four of the 30 sample program directors felt that graduate co-op presented different problems than undergraduate co-op. The latter reported that the issues they encountered at both the graduate and undergraduate levels were essentially the same. The following discussion is based on the comments of the 26 directors who observed issues particularly related to the placement of graduate co-op students.

Most of the issues that are peculiar to graduate co-op are related to the fact that graduate students have different characteristics, needs and expectations than undergraduate students. As a result of these differences, as one program director stated, graduate co-op is more "specialized" and, often, more demanding of coordinator/faculty time and efforts. About one-third of the directors indicated this was the case in their program.

A number of examples of these differences between graduate and undergraduate co-op were given. In some instances, graduate students have already had work experience, either as an undergraduate or as a full-time worker prior to entering graduate school. These students who have prior work experience are generally more concerned with the quality of their co-op experience than most undergraduates. In other cases, graduate co-op placement is complicated by the fact that the students are older, more settled, frequently married and are, thus, much less willing to relocate for a co-op job than undergraduates. Six of the directors said older students are not as interested in participating in co-op because they do not want to extend the time needed to complete their degree work. More so than undergraduates, graduate students are anxious to complete their education and begin full-time employment.

Another problem cited by program directors is that graduate students have more individualized programs of instruction than undergraduates and, therefore, have a variety of schedules. This diversity, in conjunction with the smaller number of students enrolled in graduate schools, often leads to a need for greater flexibility in scheduling of co-op jobs for graduate students. This outcome is substantiated by the finding, reported earlier in this report, that there are proportionately fewer graduate programs offering an alternating schedule than undergraduate programs. Graduate co-op placement may, therefore, have to be more individualized than undergraduate placement.

There were two general approaches to dealing with the individualized needs of graduate students which were found in the 30 sample programs. One technique

used by many of the programs was simply to tailor each placement to the students needs. This is, of course, the approach taken by all of the ad hoc programs and also some of the structured programs. The other procedure, which was used much less often, was to admit to the co-op program only those students who would comply with the prescribed co-op requirements. Thus, in one program students were warned in a pre-acceptance interview of the potential need to relocate for co-op. In this instance, the individual needs of the student had to be consistent with the program prerequisite. A student not willing or able to consider relocating for co-op would probably not be accepted as a co-op student in this type of program.

One other issue that arose in trying to attract graduate students to co-op was the competition received from graduate assistantships. Three directors specifically mentioned this as a problem. Students found assistantships more attractive and, in fact, were sometimes encouraged by the teaching faculty to take assistantships rather than co-op jobs.

Five directors also discussed problems they had in recruiting employers to graduate co-op. Some employers preferred to train their own employees on the job and encouraged graduate work on a part-time basis only.

Although the sample size of 30 is too small to predict with certainty how frequently these issues and problems occur in the population of graduate co-op programs, it is reasonable to conclude that many of these problems will be faced by a staff trying to set up graduate co-op programs. Therefore, the final section of this report will include recommendations as to effective ways of handling these problems.

Future Plans

One-third of all program directors, when asked about future plans for their graduate co-op programs, responded they planned to continue their program without modification. They did not wish to alter the current mode of operation

nor expand the program in any way. As was mentioned earlier in the report, this response occurred significantly more frequently among ad hoc program directors than directors of more structured programs.

Eleven of the sample institutions reported some expectation of expanded graduate co-op programs. Of these, however, only three directors planned substantial program growth and only one of the three has begun specific activities to encourage growth. The other eight expect a limited expansion of graduate co-op but generally have not made concrete plans to assure that growth would occur.

Five program directors reported they had no plans to expand the program but did plan to alter the program in some fashion. Proposed changes were to add the co-op component to a Ph.D. degree program, to add a new scheduling option, to give the program more structure, and to conduct an evaluation of the program.

The remaining programs in the sample were not able to state what their future plans would be due to funding uncertainties, early stage of program development, or questions of local employer interest.

CHAPTER 3

CONCLUSIONS AND RECOMMENDATIONS

The preceeding chapter has described the development and implementation of cooperative education on the graduate level as well as special issues and future plans of the research sample of 30 programs. The intent of this chapter is to present the conclusions of this research and to discuss implications for future graduate cooperative education programs.

Conclusions

- Graduate cooperative education occurs on a much smaller scale than initially anticipated. Although the proportional rise in the number of graduate programs implemented in recent years compares favorably to that of undergraduate programs, the actual numbers of graduate student participants is quite small. A few programs account for the bulk of graduate cooperative students. The majority of the programs place ten or fewer students a year.

- Associated with the finding of generally low numbers of graduate cooperative students is the finding that approximately half of the graduate programs operate on an ad hoc basis. It is usually the student's decision to initiate contact with the cooperative education department: active recruitment of students occurs only rarely. Schedules are generally quite flexible to accommodate student needs. The ad hoc programs in the research sample never place more than ten students a year.

- The other half of the sample programs operate a structured cooperative education program. These programs are initiated by college personnel and usually actively recruit students for participation in their programs. All four programs in the sample with student participation of greater than 25 students are structured. This program type is more similar to the average undergraduate cooperative education program than ad hoc programs.

- It is almost invariably the case that graduate cooperative programs are administered by the same staff people responsible for the undergraduate program.

- As a result of the different characteristics, needs and expectations of graduate students, the placement and counseling of graduate cooperative education students is more individualized and more flexible than the usual undergraduate cooperative placement.

- In graduate cooperative programs with more than ten students, there may be some difficulty in finding appropriate cooperative jobs. Employers may prefer to hire a full-time baccalaureate degree holder who will then attend the company training programs. It also occurs that a graduate student may be studying in a field other than his or her undergraduate major. Either circumstance results in difficulty in recruiting employers for graduate cooperative education students.

- Graduate cooperative education will not expand greatly in the near future. Although one-third of the sample programs planned limited expansion, generally concrete plans do not exist and evidence of institutional support for expansion is lacking.

Recommendations

Of primary importance in the implementation of any educational strategy is the compatibility of that strategy with the goals of the instituion. Thus, any instituion considering the adoption of a graduate level co-op program must have a clear picture of the expected relationship of that program to the institution as a whole. If, for example, an institutional goal is to increase professional skills of all graduate students in a particular major through a required cooperative work experience, then a well-structured program with adequate staffing is obviously needed. If, on the other hand, the institutional goal is to provide support and assistance to a few students who might specifically

seek a cooperative experience, then an ad hoc program with no additional staffing will suffice.

Once the goals have been delineated, it is then necessary to have top-level administrative support in order to help assure attainment of those goals.[9] If the goal is to have a well-developed and structured program, there must be sufficient financial support to provide adequate staffing. Similarly, if the goal is to have an ad hoc program, the administration must not expect high levels of student participation.

After the goals have been delineated and institutional support has been assured, more specific details of programming may be planned for subsequent implementation. Of significant impact in this regard is the notion that, except for larger well-structured programs, graduate cooperative education must be more individualized and flexible in all aspects of implementation than undergraduate cooperative education programs.

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[9] James W. Wilson et.al., Implementation of Cooperative Education Programs, (Boston: Cooperative Education Research Center, 1975), p. 76.

APPENDIX A

INTERVIEW GUIDE

NOTE: This guide was not given to any of the interviewees. It was used solely by the project staff in order to ensure completeness of information and ease of recording of data.

History of the Program

The Decision to Implement

When did the program begin?

How did the program begin?

1. Outgrowth of undergraduate co-op
2. Student request
3. Upper Administration decision
4. Faculty decision
5. Outgrowth of independent study course

Whose idea was it?

1. Particular faculty member
2. Faculty committee
3. Upper administration
4. Undergraduate Co-op Department
5. Student
6. College President

Why did the program begin? (What was the rationale for instituting a graduate co-op program?)

1. It worked for the undergraduate so thought we'd try it on a graduate level.
2. Value of work experience
   a. Career development
   b. Personal development
   c. Post-graduation job opportunities
   d. Financial assistance for student

Who was involved in the planning and implementation of the program?

1. Students
2. Faculty
3. Undergraduate Co-op Department
4. Administration
5. A committee with members of some of the above listed groups.

How was the program initially funded?

1. Internal budget
2. Federal grant
3. Private grant

Initial Tasks of Program Implementation

What were the initial objectives of your co-op program? Have they changed since then?

In what curricula did co-op first begin on the graduate level? (Write in specific curricula)

1. Engineering
2. Business
3. Liberal Arts

How was the choice of curricula decided?

1. An extension of undergraduate co-op
2. Faculty interest in that discipline
3. Easiest to find job in that discipline
4. Student interest in that discipline

How was the co-op staff chosen?

1. Same staff as for undergraduate co-op
2. From faculty members (recruited or volunteered)
3. Recruited staff outside the college

What was the reaction of faculty to co-op?

1. Enthusiastic support
2. Somewhat supportive
3. Neutral or indifferent
4. Somewhat opposed
5. Totally opposed
6. Not aware it exists

What was the reaction of administration to co-op?

1. Enthusiastic support
2. Somewhat supportive
3. Neutral or indifferent
4. Somewhat opposed
5. Totally opposed

What was the reaction of students to co-op?

1. Enthusiastic support
2. Somewhat supportive
3. Neutral or indifferent
4. Somewhat opposed
5. Totally opposed

What methods were used to recruit students?

1. Current or former undergraduate co-op employer
2. Advertising
3. Working with Admissions
4. Making cooperative education mandatory

What methods were used to recruit employers? What difficulties, if any, were encountered in recruiting employers? (Were contacts from undergraduate programs utilized in employer recruitment?)

1. Former undergraduate co-op employer
2. Mailings
3. Calls
4. Visits
5. Alumni contacts

Do you award academic credit for co-op? If so, when was this decision made?

1. When program was being formulated
2. After program began

What issues arose in this regard?

1. Faculty opposition
2. Whether credit should be additive or non-additive.
3. Whether tuition should be charged for co-op credit.
4. Accreditation of cooperative education credit (such as by professional associations).

How many students were placed in the first year of operation? In the second year? How many students do you have now?

Current Program

Structure of the Program

Is there a separate Co-op Department or are placements made by each academic department?

1. Separate
2. By department

How large is the staff?

What are the responsibilities of staff members?

1. Placement of co-op students
2. Procuring jobs
3. Counseling students
4. Teach courses
5. Community relations
6. Member of college committee

To whom does the Director report?

1. President
2. Provost
3. Vice President/Dean for Academic Affairs
4. Vice President/Dean for Student Affairs

Program Characteristics

Is co-op mandatory, optional, or does it vary with curriculum?

What program shcedule do you follow? (We have defined particular programmatic types as a result of our study of undergraduate co-op).

1. Alternating - periods of full-time school and full-time work of approximately equal duration.
2. Field period in which participating students leave campus for work assignments as a group during a specified period of time, not more than once a year in a given academic year.
3. Parallel plan in which participating students attend classes during one segment of the day and work part-time during another segment of the same day.

How soon after a person enters the program does the first placement occur?

What is the number of placements a student is likely to have? Does participation in co-op extend length of time needed to complete degree work?

Which curricula offer co-op on the graduate level? Does this differ from undergraduate co-op offerings? If so, how?

Does the addition of cooperative education to the curricula extend the length of the program? If yes, how much?

1. No
2. Yes - by a year
3. Yes - by a semester

Is cooperative education offered on a post-graduate level? If so, which ones?

1. Yes
2. No

What is your policy concerning tuition or fees for graduate co-op?

1. It is charged at the regular rate per credit hour.
2. If is charged at a rate different from the regular rate per credit hour.
3. Student pays a set tuition for the year but it is not computed on a per credit hour basis.
4. No tuition charged.

(If academic crediting procedures were not discussed earlier, discuss them here)

Does your institution award credit toward graduation for participation in your cooperative education program?

1. Yes, but the credit is actually in addition to that normally required for graduation. (Additive Credit)
2. Yes, and the credit given takes place of credits otherwise earned through on-campus courses. (Non-Additive Credit)
3. No, but academic departments permit students to complete papers or other projects based upon their work experience, and grant credit for them.
4. Either additive or non-additive depending upon the curriculum.
5. No

If you award credit based upon cooperative work experience, whether additive or non-additive, how much credit do you award per work term?

1. One credit
2. Two credits
3. Three credits
4. Four credits
5. Five credits
6. Six credits
7. Seven credits
8. Eight or more credits (please specify how many)_____
9. Varies (please indicate the range of credits_____

If you award credit based upon cooperative work experience, whether additive or non-additive, what is the total number of credits toward the degree that may be earned?

1. Fewer than four credits
2. 4 - 6 credits
3. 7 - 9 credits
4. 10 - 12 credits
5. 13 - 15 credits
6. 16 - 18 credits
7. 19 - 21 credits
8. 22 or more credits
9. Varies

If you award credit based upon cooperative work experience, must that work experience be directly related to the student's major for credit to be earned?

1. Yes, without exception
2. No, in most instances
3. No

If you award credit based upon cooperative work experience, who has final responsibility for the granting of that credit?

1. The cooperative coordinator working with the student.
2. The director of the cooperative education program.
3. A cooperative education advisory committee.
4. The coordinator (or director) in concert with a member of the student's teaching faculty.
5. The academic department in which the student is enrolled.
6. The coordinator and director of the cooperative education program.
7. The coordinator (or director) in concert with the academic dean and/or the academic department.
8. Other (please specify)_____

What are the criteria for awarding credit for co-op?

Number of students using former co-op job for graduate co-op? Number using former job for graduate co-op?

Percent of students who remained with graduate co-op employer?

Salary range for graduate co-op students? Does this vary for major or type of program?

Evaluation of the Program

Are there any problems (issues) encountered in graduate co-op that are not problems (issues) in undergraduate co-op? If so, what are they and how are they overcome?

What techniques, if any, are used to evaluate this program?

1. Consultants
2. Questionnaires to students
3. Faculty Committee or review
4. Examination of placement statistics

What are the future plans for this program?

1. Expand
2. Strengthen
3. Continue the same
4. Drop program

APPENDIX B

NORTHEASTERN UNIVERSITY
360 HUNTINGTON AVENUE
BOSTON, MASSACHUSETTS 02115

COOPERATIVE EDUCATION RESEARCH CENTER

Date

Dear Cooperative Education Director:

Data from the annual survey conducted by the Cooperative Education Research Center has shown a continuing increase in the number of graduate level cooperative education programs. We believe it would be of great value to the cooperative education community to collect and share information about these programs. The method we have chosen for collecting this information is telephone interviewing.

We have randomly selected your name from our list of active graduate co-op programs and plan to call you between December 1 and December 7. Our conversation will focus on the following topics: the decision to implement a graduate co-op program; the initial tasks of program implementation; the current structure and characteristics of the program, including academic credit policies; and future plans of the program.

Either Cynthia Whitten, Research Assistant, or I will be calling you and we look forward to talking with you in the near future. If you have any questions prior to the telephone interview, please do not hesitate to call us (617 437-3784).

Sincerely,

Sylvia J. Brown
Project Director

SJB:dmk

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